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Application Number	09/406,330
Filing Date	September 27, 1999
First Named Inventor	Ellis T. CHA
Art Unit	2652
Examiner Name	David Donald DAVIS
Attorney Docket Number	2855/16

Total Number of Pages in This Submission

38

**ENCLOSURES (Check all that apply)**

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<b>Remarks</b> <b>Submission of corrected Appeal Brief previously filed on February 23, 2004.</b> <div style="text-align: right;"><b>RECEIVED</b> MAY 27 2004 Technology Center 2600</div>		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual name	Stephen T. Neal (Reg. No. 47,815)		
Signature	<i>Stephen T. Neal</i>		
Date	May 18, 2004		

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PATENT



DOCKET NO.: 2855/16

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : Ellis T. CHA  
SERIAL NO. : 09/406,330  
FILED : September 27, 1999  
FOR : A MULTIPLE LEVEL SURFACE CONFIGURATION  
FOR A SUB-AMBIENT PRESSURE AIR BEARING  
SLIDER  
GROUP ART UNIT : 2652  
EXAMINER : David Donald DAVIS

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Dated: May 18, 2004

Signature

Barbara Vance

Barbara Vance

ATTENTION: Board of Patent Appeals and Interferences

APPELLANT'S BRIEF

Dear Sir:

This brief is in furtherance of the Notice of Appeal, filed in this case on December 23, 2003.

This corrected Appeal Brief was previously submitted on February 23, 2004.

**1. REAL PARTY IN INTEREST**

The real party in interest in this matter is SAE Magnetics (H.K.) LTD. (Recorded March 27, 2000; Reel/Frame 010642/0611).

**2. RELATED APPEALS AND INTERFERENCES**

There are no related appeals.

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**3. STATUS OF THE CLAIMS**

Claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27 are pending in the application. Claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27 were rejected under 35 U.S.C. §102(e) as being anticipated by Levi et al., U.S. Patent No. 6,137,656 (hereinafter "Levi"). This appeal is an appeal from the rejection of claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27.

**4. STATUS OF AMENDMENTS**

No claims were amended after final.

**5. SUMMARY OF THE INVENTION**

The present invention relates to an air-bearing surface (ABS) design for a slider used in a hard disk drive. The ABS of the slider has two rails extending in a longitudinal direction along the slider body. The leading edges of the rails are spaced from a leading edge of the slider body. *See* page 9, lines 6-12.

Embodiments of the slider design of the present invention are shown in Figures 1a and 1b. The slider design of Figures 1a and b provides a sub-ambient pressure slider with a rear

compression pad. A shallow leading edge is provided with an open front end that offers an improved loading and unloading of the slider in the so-called "ramp" design. The slider design is also optimized to provide improved air-bearing stiffness. *See* page 11, lines 16-20.

Referring to Figure 1a, the slider 10 includes first and second rails 11 and 12 which provide air bearing surfaces when the slider is placed proximately to a moving magnetic medium. At the leading edge 13 of the slider, the slider is etched or otherwise modified to provide a first structure 14 having a first depth relative to the height of the rails 11 and 12. In this embodiment, first structure 14 extends to the outside, the inside and leading edges of the rails 11 and 12. A second structure 15 is provided between the rails 11 and 12 and is etched to a depth that is greater than the first structure. In this embodiment, the first structure 14 is etched to a depth of between 5 to 10 micro-inches and the second structure 15 is etched to a depth of 60-120 micro-inches. Also the second structure 15 begins more than one-third of the entire length from the leading edge of the slider and preferably begins from one-third to two thirds of the entire length from the leading edge of the slider. A rear compression pad 16 may be provided which includes a first surface 16a at a height equal to the height of the first and second rails and a third structure 16b have a third depth. In this embodiment, the third depth is equal to the first depth of the first structure 14. As known in the art, a layer of alumina 17 can be provided for inclusion of a magnetic read/write apparatus. In the second embodiment of Figure 1b, the slider design is modified slightly by providing a different shaping of the rails. *See* p. 11, line 21 – p. 12, line 16.

## **6. ISSUE**

**A. Are claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27 anticipated under 35 U.S.C. §102(e) by Levi et al., U.S. Patent No. 6,137,656 (hereinafter “Levi”)?**

**7. GROUPING OF CLAIMS**

The claims may be grouped as follows. A separate basis of patentability exists for each group.

**A. Claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27.**

The claims in these groups do not stand or fall together unless so indicated below in the argument.

**8. ARGUMENT**

**A. Claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27 are not anticipated by Levi**

Independent claims 1, 6, 11, 16, 21, and 26 of the present invention describe a slider with a second structure beginning more than one-third of the length of the slider body from the leading edge of the slider body. Claims 2, 7, 12, 17, 22, and 27, respectively, depend from and further define claims 1, 6, 11, 16, 21, and 26.

Claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27 were rejected under 35 U.S.C. §102(e) as being anticipated by Levi. Levi discloses an air bearing slider for use in a disk drive with a plurality of pads that form discrete air bearing surfaces having a uniform height.

35 U.S.C. §102(e) states:

(e) the invention was described in- (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in

the English language; or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a);

Appellant respectfully submits that Levi fails to disclose a second structure that begins more than one-third of the length of the slider body from the leading edge of the slider body, as recited in claims 1, 6, 11, 16, 21, and 26. The specification of Levi makes no reference to where the cavity 46, cited as the second structure by the Examiner, begins in relation to the leading edge 28 of the slider body 16 and examiner has not cited to such. Therefore, Figures 2 and 3 of Levi would be the only way to divine this limitation if it existed in Levi. In Figures 2 and 3, the length of the slider body 16 is shown to be 5.7 cm for purposes of the drawing representation. To meet this limitation, the cavity 46 would have to begin more than 1.9 cm, or one-third of the length of the slider body 16, from the leading edge 28. The cavity 46 begins 0.8 cm from the leading edge 28 in Figure 2 and 0.9 cm from the leading edge 28 in Figure 3. In other words, the cavity 46 begins substantially less than a third of the length of the slider body 16 from the leading edge 28, indeed beginning less than a sixth of the length of the slider body 16 from the leading edge 28. Therefore, Levi does not anticipate claims 1, 6, 11, 16, 21, and 26. Appellant respectfully submits, therefore that claims 2, 7, 12, 17, 22, and 27 are allowable as depending from allowable base claims.

In summary, it has been demonstrated that the Levi reference does not suggest the recited claim combination. Accordingly, a rejection of these claims under 35 U.S.C. §102(e) is improper. In view of the above, Appellants respectfully submit that the rejection of claims 1-2, 6-7, 11-12, 16-17, 21-22, and 26-27 should be reversed.

### CONCLUSION

Appellants therefore respectfully request that the Board of Patent Appeals and Interferences reverse the Examiner's decision rejecting claims 1-21 and direct the Examiner to pass the case to issue.

The Office is hereby authorized to charge any fees, or credit any overpayments, to Deposit Account No. **11-0600**.

Respectfully submitted,

KENYON & KENYON

Date: May 18, 2004

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## **APPENDIX**

(Brief of Appellants Ellis Cha et al.  
U.S. Patent Application Serial No. 09/406,330)

### **CLAIMS ON APPEAL**

1. (Previously Presented) A slider comprising:

a slider body;

first and second rails extending in a longitudinal direction along the slider body where leading edges of said rails are spaced from a leading edge of the slider body;

a first structure having a first depth and extending from said leading edge of the body to the leading edges of the first and second rails and between the first and second rails;

a second structure having a second depth disposed adjacent to said first structure and between said first and second rails, said second depth being lower than said first depth; and wherein said second structure begins more than one-third of the length of the slider body from the leading edge of the slider body; and

a compression pad disposed proximately to a trailing edge of said slider body, said compression pad having a height equal to a height of said first and second rails and said compression pad including a third structure having a depth equal to the first depth.

2. (Previously Presented) The slider of claim 1

wherein said first and second rails are generally closer to one another near the leading edge than near the trailing edge.

3-5. (Cancelled)



6. (Previously Presented) A slider comprising:  
a slider body;  
first and second rails extending in a longitudinal direction along the slider body;  
a first structure having a first height and extending from a leading edge of the body and  
between the first and second rails;  
a second structure having a second height disposed adjacent to said first structure and  
between said first and second rails, said second height being lower than said first height; and  
wherein said second structure begins more than one-third of the length of the slider body from  
the leading edge of the slider body; and  
a compression pad disposed proximately to a trailing edge of said slider body, said  
compression pad having a height equal to a height of said first and second rails and said  
compression pad including a third structure having a height equal to the first height.

7. (Previously Presented) The slider of claim 6  
wherein said first and second rails are generally closer to one another near the leading  
edge than near the trailing edge.

8-10. (Cancelled)

11. (Previously Presented) A head suspension assembly comprising:  
a flexure; and  
a slider coupled to said flexure, said slider including  
a slider body;

first and second rails extending in a longitudinal direction along the slider body where leading edges of said rails are spaced from a leading edge of the slider body;

a first structure having a first depth and extending from said leading edge of the body to the leading edges of the first and second rails and between the first and second rails;

a second structure having a second depth disposed adjacent to said first structure and between said first and second rails, said second depth being lower than said first depth; and wherein said second structure begins more than one-third of the length of the slider body from the leading edge of the slider body; and

a compression pad disposed proximately to a trailing edge of said slider body, said compression pad having a height equal to a height of said first and second rails and said compression pad including a third structure having a depth equal to the first depth.

12. (Previously Presented) The head suspension of claim 11

wherein said first and second rails are generally closer to one another near the leading edge than near the trailing edge.

13-15. (Cancelled)

16. (Previously Presented) A head suspension assembly comprising:

a flexure;

a slider coupled to said flexure, said slider including

a slider body;

first and second rails extending in a longitudinal direction along the slider body;

a first structure having a first height and extending from a leading edge of the body and between the first and second rails;

a second structure having a second height disposed adjacent to said first structure and between said first and second rails, said second height being lower than said first height; and wherein said second structure begins more than one-third of the length of the slider body from the leading edge of the slider body; and

a compression pad disposed proximately to a trailing edge of said slider body, said compression pad having a height equal to a height of said first and second rails and said compression pad including a third structure having a height equal to the first height.

17. (Previously Presented) The head suspension of claim 16

wherein said first and second rails are generally closer to one another near the leading edge than near the trailing edge.

18-20. (Cancelled)

21. (Previously Presented) A disk drive comprising:

a recording medium adapted to be rotated at a given velocity;

a flexure;

a slider coupled to said flexure and adapted to fly above said recording medium when rotated, the slider including

a slider body;

first and second rails extending in a longitudinal direction along the slider body where leading edges of said rails are spaced from a leading edge of the slider body;

a first structure having a first depth and extending from said leading edge of the body to the leading edges of the first and second rails and between the first and second rails;

a second structure having a second depth disposed adjacent to said first structure and between said first and second rails, said second depth being lower than said first depth; and wherein said second structure begins more than one-third of the length of the slider body from the leading edge of the slider body; and

a compression pad disposed proximately to a trailing edge of said slider body, said compression pad having a height equal to a height of said first and second rails and said compression pad including a third structure having a depth equal to the first depth.

22. (Previously Presented) The disk drive of claim 21

wherein said first and second rails are generally closer to one another near the leading edge than near the trailing edge.

23-25. (Cancelled)

26. (Previously Presented) A disk drive comprising:

a recording medium adapted to be rotated at a given velocity;

a flexure;

a slider coupled to said flexure and adapted to fly above said recording medium when rotated, the slider including

a slider body;

first and second rails extending in a longitudinal direction along the slider body;

a first structure having a first height and extending from a leading edge of the body and between the first and second rails;

a second structure having a second height disposed adjacent to said first structure and between said first and second rails, said second height being lower than said first height; and wherein said second structure begins more than one-third of the length of the slider body from the leading edge of the slider body; and

a compression pad disposed proximately to a trailing edge of said slider body, said compression pad having a height equal to a height of said first and second rails and said compression pad including a third structure having a height equal to the first height.

27. (Previously Presented) The disk drive of claim 26

wherein said first and second rails are generally closer to one another near the leading edge than near the trailing edge.

28-30. (Cancelled)